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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,845	04/30/2004	Christopher E. Blair	DKT01085C (0267.00047)	2649
7590	12/22/2005		EXAMINER BOLTON, TARA L	
BorgWarner, Inc. Patent Administrator 3850 Hamlin Road Auburn Hills, MI 48326-2872			ART UNIT 3681	PAPER NUMBER

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/627,845	BLAIR ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tara L. Bolton	3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

The following is a first action on the merits of application 10/627845 filed on 04/30/2004.

#### ***Information Disclosure Statement***

1. The information disclosure statement (IDS) filed on 10/27/2003 has been considered.

#### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: element 50 on page 14, line 20 and element 94 on page 17, line 15. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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***Specification***

3. The disclosure is objected to because of the following informalities: page 11, line 13 and throughout paragraph [0027], engagement members are assigned to element 24, previously, pawls were assigned to element 24; page 16, line 11, the underdrive clutch is assigned to element 52, previously, the underdrive clutch was assigned to element 54 and element 52 was assigned to the torque converter. Also, paragraphs [0027] and [0028] are duplicates.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 1 recites the limitation "said inner race of said friction clutch" in line 13 of the claim. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being obvious over Koenig (U.S. Patent No. 6,830,531) in view of Stefina (U.S. Patent No. 6,814,200).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing

that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Claim 1, Koenig discloses a transmission assembly (50) having at least one shaft (88) and at least one gear set (72) operatively coupled to the shaft to provide low and reverse gear ratios, wherein the transmission assembly comprises a transmission casing (90) for supporting the shaft and the gear set of said transmission assembly; said gear set including a sun gear (86) operatively coupled to a source of torque in said transmission assembly, a ring gear (96) mounted for rotation about said sun gear and a plurality of pinion gears (92) supported by a carrier (94) for meshing rotation about said sun gear and between said ring gear and said sun gear, said carrier operatively coupled to said shaft; a friction clutch assembly (63) including an inner hub operatively connected to said ring gear of said gear set, an outer hub fixed to said transmission casing and a clutch pack (98) interposed between said inner hub and said outer hub and operable to connect said inner and outer hubs together. Though, Koenig teaches a one-way clutch assembly (10) having an inner race operatively coupled to said transmission casing, an outer race operatively coupled to said ring gear and the inner hub of said friction clutch assembly, she fails to explicitly teach a bi-directional clutch assembly.

However, Stefina discloses a bi-directional clutch assembly (10) having an inner race (12), an outer race (18) and an engagement mechanism (15) supported between said inner and outer races of said bi-directional clutch assembly, said

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engagement mechanism including a first set of pawls (24A) and a second set of pawls (24B) operatively supported between said inner and outer races; at least one actuating cam (26) disposed adjacent said inner and outer races and including a plurality of disengagement portions and a plurality of engagement portions, said engagement and disengagement portions cooperating with said first and second sets of pawls to selectively disengage said first and second sets of pawls to provide freewheeling relative rotation between said inner and outer races; to selectively actuate at least one pawl of said first set of pawls so that torque is translated in a first rotational direction when said transmission assembly is in low gear but allowing freewheeling relative rotation between said inner and outer races in a second rotational direction that is opposite to said first rotational direction when said transmission assembly is in any higher gear; to selectively actuate at least one pawl of said second set of pawls so that torque is translated in said second rotational direction opposite to said first rotational direction when said transmission assembly is in reverse gear but allowing freewheeling relative rotation in said first rotational direction when said transmission assembly is in any gear greater than first; and to selectively actuate at least one pawl of said first and second sets of pawls so that torque is translated between said inner and outer races in both of said first and second rotational directions to provide engine breaking.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the teachings of Koenig to



substitute the one-way clutch with the bi-directional clutch to reduce parasitic energy loss, improve operation efficiency, and reduce cost as taught by Stefina (column 4, lines 1-3).

Claim 2, Stefina's assembly includes a pair of actuating cams (shown in Fig. 1), each of said pair of actuating cams associated with one of said first and second sets of pawls, each one of said pair of actuating cams including a flat disc portion (41) having a plurality of disengagement portions (36) spaced about the outer periphery (43) of said flat disc portion and operable to move said pawls out of engagement between said inner and outer races and a plurality of engagement portions spaced about the outer periphery of said flat disc portion and operable to move said pawls into engagement between said inner and outer races.

Claim 3, Stefina discloses that the pair of actuating cams (26) are supported for incremental, coaxial rotational movement on opposite sides of said inner and outer races.

Claim 4, Stefina discloses that the engagement mechanism (15) includes a plurality of pockets (20) formed on the inner circumference (22) of said outer race (18) and a plurality of teeth (14) formed on the outer circumference (16) of said inner race (12).

Claim 5, Stefina discloses that the plurality of pockets (20) includes first and second sets of pockets (20A and 20B) that correspond to said first and second set of pawls and wherein each pocket in said first set is located adjacent to a pocket from said second set and each pocket in said first set is oriented in an



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opposite direction relative to an adjacent pocket of said second set about the inner circumference of said outer race.

Claim 6, Stefina discloses that each pawl (24) of said first and second sets of pawls is moveably supported in a corresponding one of said first and second set of pockets such that each pawl of said first set is adjacent to a pawl from said second set of pawls and such that each pawl in set first set is oriented in an opposite direction relative to an adjacent pawl from said second set of pawls and wherein said first set of pawls acts to translate torque between said inner and outer races in said first rotational direction when at least one pawl from said first set of pawls is disposed in its engaged position and said second set of pawls act to translate torque between said inner and outer races in said second rotational direction that is opposite to said first rotational direction when at least one of pawl of said first set of pawls is disposed in its engaged position.

Claim 7, Koenig shows that the shaft (88) is operatively connected to the output (66) of said transmission assembly and said carrier (94) is operatively connected to at least one other gear set of said transmission assembly (50).

### ***FACSIMILE TRANSMISSION***

Submission of your response by facsimile transmission is encouraged. Group 3600's facsimile number is (571) 273-8300. Recognizing the fact that reducing cycle time in the processing and examination of patent applications will effectively increase a patent's term, it is to your benefit to submit responses by facsimile transmission whenever permissible. Such submission will place the response directly in our examining group's

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hands and will eliminate Post Office processing and delivery time as well as the PTO's mail room processing and delivery time. For a complete list of correspondence not permitted by facsimile transmission, see MPEP 502.01. In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee which applicant is paying by check should not be submitting by facsimile transmission separately from the check.

Responses submitted by facsimile transmission should include a Certificate of Transmission (MPEP 512). The following is an example of the format the certification might take:

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Typed or printed name of person signing this certificate:

\_\_\_\_\_

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(Signature)

If your response is submitted by facsimile transmission, you are hereby reminded that the original should be retained as evidence of authenticity (37 CFR 1.4 and MPEP 502.02). Please do not separately mail the original or another copy unless required by the Patent and Trademark Office. Submission of the original response or a follow-up

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copy of the response after your response has been transmitted by facsimile will only cause further unnecessary delays in the processing of your application; duplicate responses where fees are charged to a deposit account may result in those fees being charged twice.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tara L. Bolton whose telephone number is 571-272-1649. The examiner can normally be reached on Monday-Thursday 8:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tlb

*TJB*  
12/14/05

*Charles A Marmor 12/20/05*  
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